

On 19 Dec 2018, the Centre for Environmental Economics & Climate Change (CEECC) at Pakistan Institute of Development Economics (PIDE) organized a seminar on ‘Water Economy of Pakistan: Challenges, and Way Forward’. The seminar was hosted by Dr. Ghulam Samad (CEECC, PIDE), and the main speakers were Dr. Asim Zia (Vermont University, USA), Dr. Anwar (PIDE), and Dr. Junaid Memon (PIDE). It was also joined by Dr. Rehana Siddiqui (CEECC, PIDE), Dr. Abedullah (PIDE), faculty members, researchers and students.

In the seminar, Dr. Asim Zia emphasized on the designing and implementing of early warning flood system. The biggest challenge in this regard is the traditional prevailing modeling systems, which works in isolation with the ecological systems. Impact and feedback of economic models on natural ecosystem is missing. He argued to find out the impact of climate change on lakes, and other intermediating institutions, which was changing the dimensions of multilevel governance. He said to figure out the interaction between different systems and their expected outcomes. Intervening systems are required for more robust resilient socio-ecological systems. A resilient system can provide alternative solutions. He also emphasized the need to determine policy outcomes, and integrated assessment models were conceptualized for this purpose.

He pointed out that climate change had significant implications for water, population growth, agriculture productivity, and dairy farming. Agricultural fertilizers put nutrients into rivers, resulting in flooding and rising temperature. Further, the climate change makes it severe as the dirty water flows through streams. Institutionalization of policies is needed, and we need to figure out a trans-boundary policy because policy makers are unable to meet their targets arising from climate change. The global climate change is a trans-boundary problem, and lakes flowing across countries make the situation worse. Such issues make Canada and USA to develop a framework for a sustainable solution.

Indus Basin analysis reveals that a large number of people were displaced in Indus Basin after the floods in 2010. Through an early warning system, although a warning was given to government 6 months in advance, but no action was taken by the officials and 20 million people were displaced as a result. There is a need to institutionalize the early warning system in Pakistan. On the other hand, droughts are common in the desert areas of the country and millions people have moved to other places so far, and the situation is expected to get worse in future.

He argued to educate people to deal with the climate related problems. Under the current Intended Nationally Determined Contributions (INDC), 3-5 °C increase in temperature is expected by the mid-century. Indus Basin is one of the most vulnerable area because it depends on glacier and rainfall. If glaciers melt by 2050, and the pattern of monsoon changes, it would leave lesser water in Indus Basin in future, and the situation would get worse in extreme scenarios. There is a need to incorporate the problem in the mainstream policy making process.

Emphasizing on water issues, Dr. Anwar said that water was scarce in Pakistan and it was not in abundance in country. Out of all the available water in country, share of fresh water is only 3% in total available water, and most of it comes from melting snow. Water should be the priority, and food demand is going to increase because of rising population. Further, water and energy are interlinked, as hydel-energy is dependent on water. It is expected that water shortage would increase by 40% till 2030, and 2/3 of population would live in water scarce areas.

On the other hand, per capita water availability is decreasing in Pakistan. Water productivity in Pakistan is lower than India and China in case of cereal crops. Pakistan needs to put efforts to reduce water consumption in less productive crops. For agriculture purpose, around 21% of total water is extracted from ground through tube-wells. Increasing number of tube-wells is building pressure on ground water. Livestock sector has also severe implications for water and environment. Meat production in Pakistan needs more water, a vegetarian behavior can increase water supply.

Water sector is not profitable in Pakistan as it covers only 30% of its operating and maintenance cost. Water pricing should be market based instead of flat rate system. Water and health are related, availability of fresh and clean water can reduce diseases. Research shows that 80% diseases result from unsafe drinking water and unhygienic conditions.

Dr. Junaid Memon said that natural resource management system became important when resources became scarce. He emphasized on the need to focus on the areas where water was scarce. Availability of new technologies can change the scenario of ground water management. However, farmers are not motivated to adopt the new technology. In Pakistan, drip irrigation system and laser leveling is more common to increase water efficiency. It is estimated that around PKR 32,000 is needed to establish a drip irrigation system for 1 acre of land. Lack of capital, and local supply of inputs both make farmers less motivated towards the new technologies. Offering subsidized

services, and spare parts of drip irrigation system can enhance the acceptance rate of new technology up to 80%.